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09/838,684	04/19/2001	William S. Wong	D/A1205	8971

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EXAMINER
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TRAN, BINH X

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 11/26/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/838,684

Applicant(s)

WONG ET AL.

Examiner

Binh X Tran

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-24 is/are allowed.
- 6) ☒ Claim(s) 1, 7, 11-14, 26, 27 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 2-6, 8-10, 15-18, 21, 25, 28 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8, 9.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 1765

### **DETAILED ACTION**

1. The examiner consider all the references submitted in the information disclosure statement except EP 1040916 because it fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered. See attachment PTO 1449

#### ***Specification***

2. The use of the trademark Kemamide has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

#### ***Double Patenting***

3. Claim 25 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 24. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

#### ***Claim Rejections - 35 USC § 112***

Art Unit: 1765

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The examiner cannot find the support in the specification for the limitation that the phase change masking material is "stearyl erucamide" mixture solution. The examiner clearly recognizes that the applicants disclose that the phase masking material is "Kemamide base wax solution". However, the applicants fail to define that the generic terminology for Kemamide base wax is stearyl erucamide in the specification. The applicants must define the generic terminology for Kemamide in the specification before using the generic terminology in the claim.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 13, 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1765

In claim 13, "low vapor pressure" is vague and indefinite. It is unclear from the specification, what is the pressure range of the vapor in order to be considered as "low vapor pressure".

Claim 25 recites the limitation "the spin-on polymer" in claim 23. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 7, 12-14, 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Chu et al. (US 5,635,037).

Chu discloses a method of masking comprising the step of:

maintaining a surface to be etched below the freezing temperature of a phase-change masking material (col. 6 lines 65-66);

ejecting a liquid form droplets of the phase change masking material (21) in a pattern on the surface to be etched, the droplets changing from a liquid to a solid after contact with the surface to form a first mask (col. 6 lines 45-67; Fig 2);

etching the surface to remove material from around said first mask to create a first etched surface (col. 7 lines 1-15);

removing the first mask from the first etched surface.

Art Unit: 1765

Respect to claim 7, Chu teaches to control the temperature of the phase change material to eject the droplets (read on "thermal effect"). Respect to claim 12, Chu disclose the phase changing material is indium and it exists as a liquid form if it is heated above its melting. Chu further discloses the step of cooling the phase change below the melting point to solidify it (col. 6 lines 65-67). It is known in the art that indium has the melting point at point 156.6 °C (See prior art made of record). The examiner, therefore, interprets Chu's reference reads on the limitation of "the phase change material is a liquid at temperature above 60 degrees centigrade and a solid at room temperature".

Respect to claim 13, Chu teaches the etching is a dry etching process and the phase change material possesses a vapor pressure (col. 7 lines 1-15). Respect to claim 14, Chu teaches placing the substrate to be etched in a vacuum chamber for reactive ion etching or sputtering etching. Respect to claim 31, Chu teaches to maintaining the temperature at a temperature to allow the adjacent deposited drops to coalesce before freezing (Fig 2). Respect to claim 32, Chu teaches to series of adjacent drop forms a line to enable etching a straight line (Fig 2).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1765

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 26, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alwan (US 5,695,658).

Alwan discloses a method of masking comprising the steps of:

maintaining the substrate at a temperature;

ejecting in liquid form droplets of a solution including a liquid carrier and suspended masking in a pattern on the surface to be etched, the liquid carrier evaporate after contact with the substrate leaving the masking material to form a first mask (col. 3 lines 24-43, Fig 7);

etching the surface to remove material from around the mask to create a first etched surface (col. 3 lines 58-61, Fig 8);

removing the mask from the first etched surface (Fig 10-11).

Alwan does not explicitly disclose the step of maintaining substrate temperature above the boiling point of a liquid carrier. However, Alwan clearly discloses that the substrate temperature and evaporation rate affect the drying rate of the droplets (col. 3

Art Unit: 1765

lines 35-38). It would have been obvious to one having ordinary skill in the art, at the time of invention, to modify Alwan by maintaining the substrate above the boiling point of the liquid carrier because this would maximize the evaporation rate of the liquid carrier and therefore reduce the processing time. Respect to claim 30, Alwan teaches to control the temperature of the phase change material to eject the droplets (read on "thermal effects in a reservoir of phase change material to eject said droplets")

13. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alwan as applied to claim 26 above, and further in view of Wilson (US 5,895,582).

Claim 27 differs from Alwan by the specific temperature of the substrate during etching. Wilson teaches the etch temperature are result effective variable. Wilson also discloses the etching step is performed at room temperature (Table 2-3). The result effective variable is commonly determined by routine experiment. The process of conducting routine experiments so as to produce an expected result is obvious to one of ordinary skill in the art. Hence, it would have been obvious to one having ordinary skill in the art, at the time of invention, to perform routine experiment to obtain optimal etch temperature.

#### ***Allowable Subject Matter***

14. Claims 2-6, 8-10, 15-18, 21, 28, 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



Art Unit: 1765

15. Claim 11 are objected to as being dependent upon a rejected base claim, but would be allowable if the applicants amend the specification by defining generic terminology for Kemamide before using the generic terminology in the claim.
16. Claims 19-24 are allowed.

### ***Response to Arguments***

17. The applicants' argument with respect to claims 2-6, 8-10, 15-18, 19-24, 28-29 are persuasive. Therefore, the examiner withdraws the rejection in previous office action.

Applicant's arguments with respect to claims 1, 7, 12-14, 26-27, 30-32 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

<http://www.webelements.com/webelements/elements/text/In/heat.html> discloses that indium has the melting point at 156.6 °C.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh X Tran whose telephone number is (703) 308-1867. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (703) 305-2667. The fax phone

Art Unit: 1765

number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Binh X. Tran

SUPERVISOR  
NADINE G. NORTON  
PRIMARY EXAMINER  
*Nadine Norton*